#3

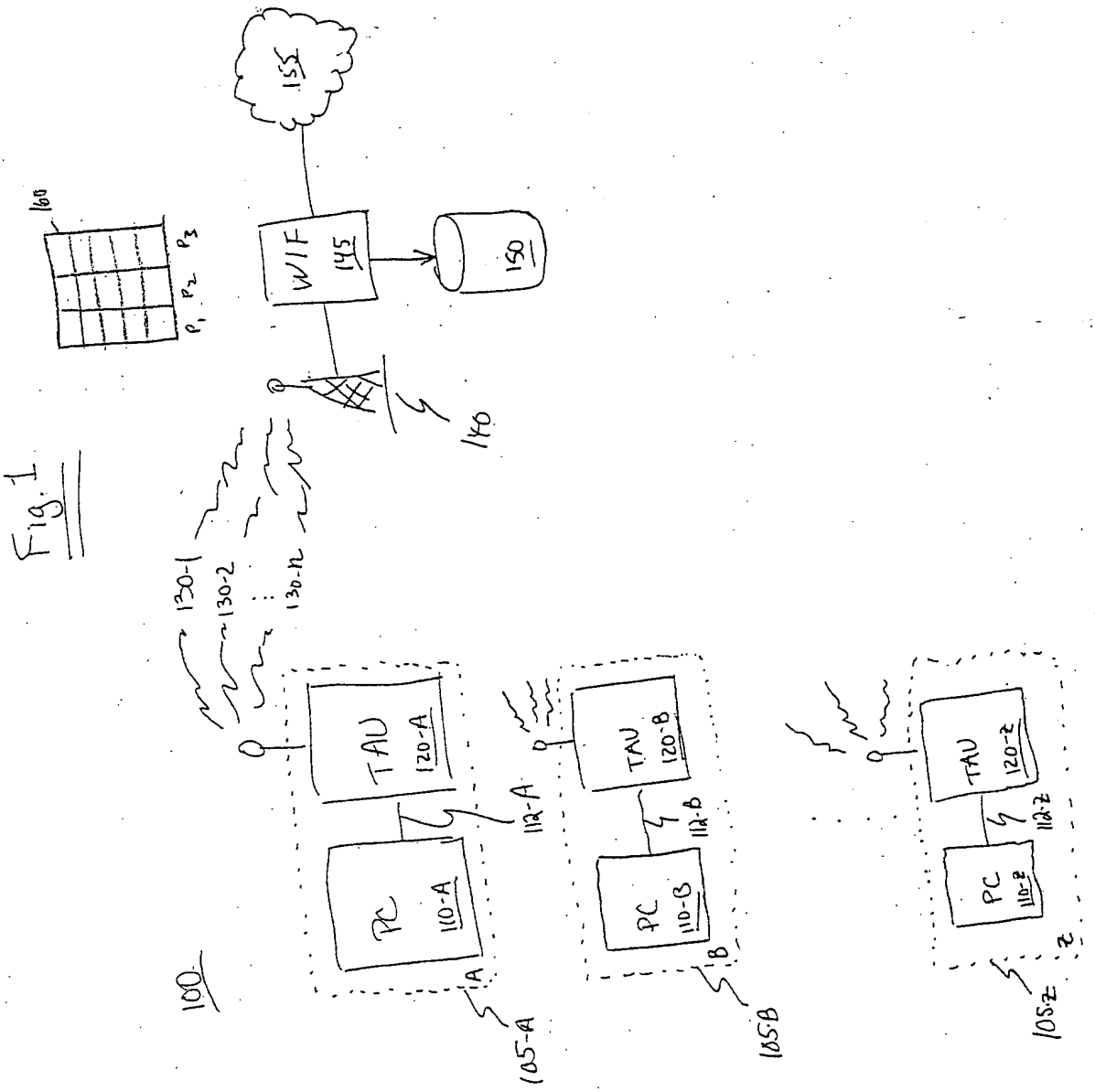
155
160
P1 P2 P3
WIF 145
150
140
130-1
130-2
130-n
TAU 120-A
PC 110-A
112-A
105-A
TAU 120-B
PC 110-B
112-B
105-B
TAU 120-Z
PC 110-Z
112-Z
105-Z
100

Fig. 1

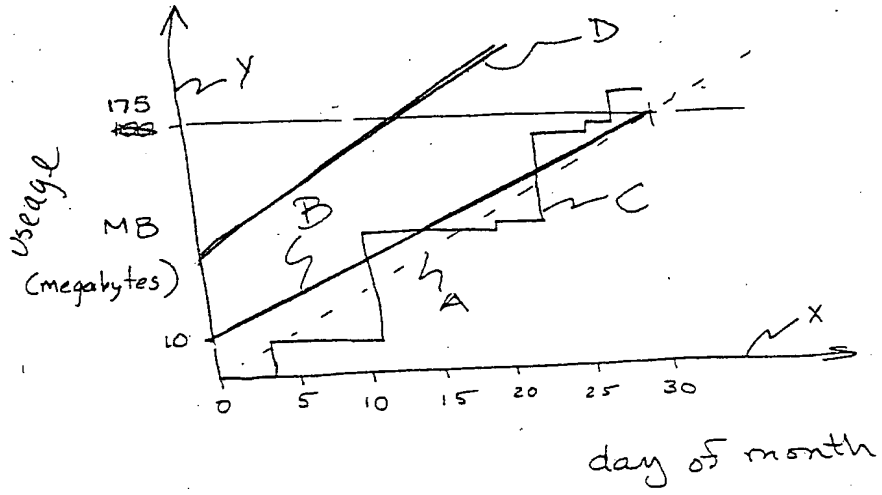

Fig. 2

Fig. 3

Priority Level	Max. time for continuous transfer
1	600 seconds
2	120 seconds
3	30 seconds

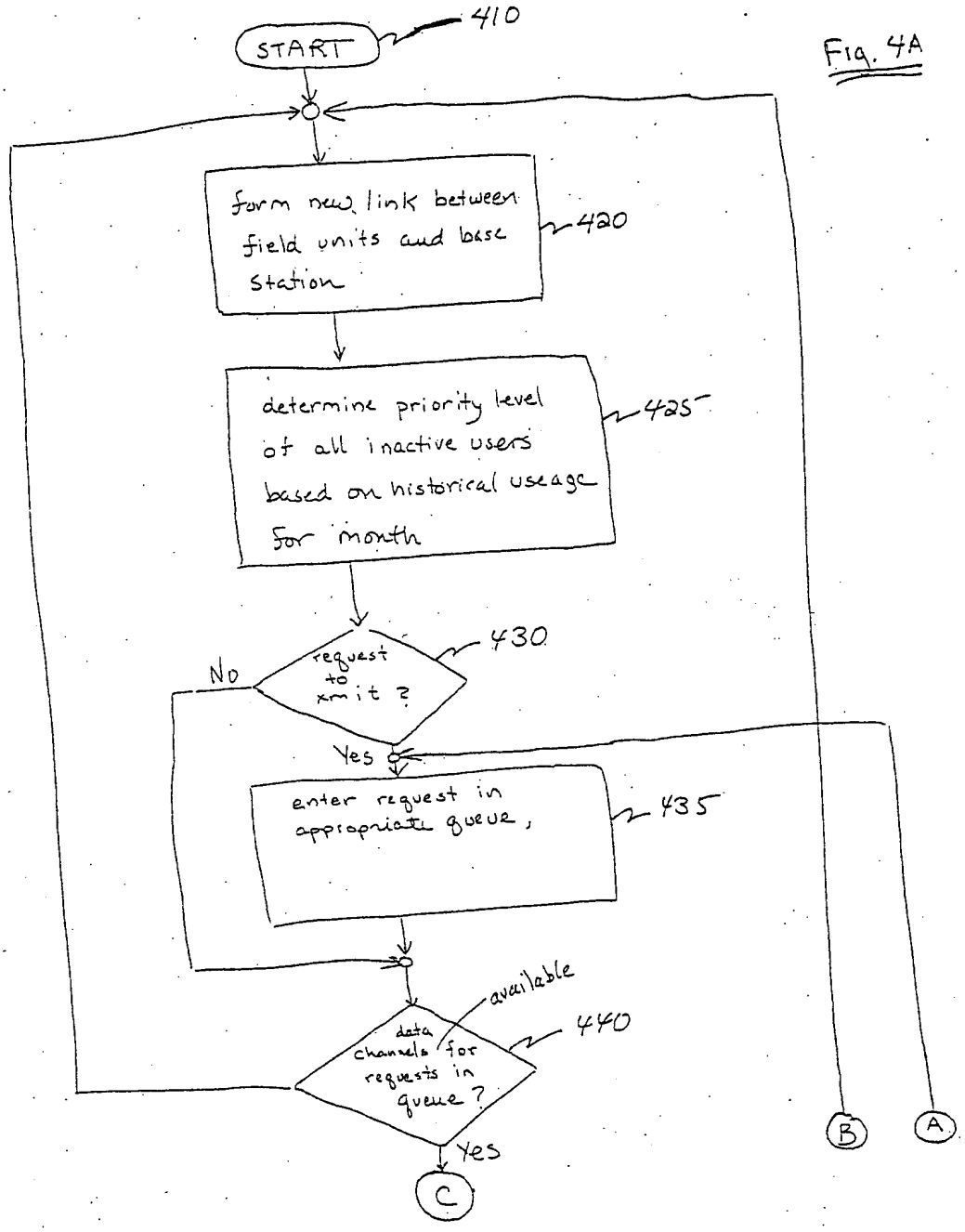
START
410
form new link between field units and base station
420
determine priority level of all inactive users based on historical useage for month
425
request to xmit ?
430
No
Yes
enter request in appropriate queue,
435
data channels available for requests in queue ?
440
Yes
B
A
C

Fig. 4A

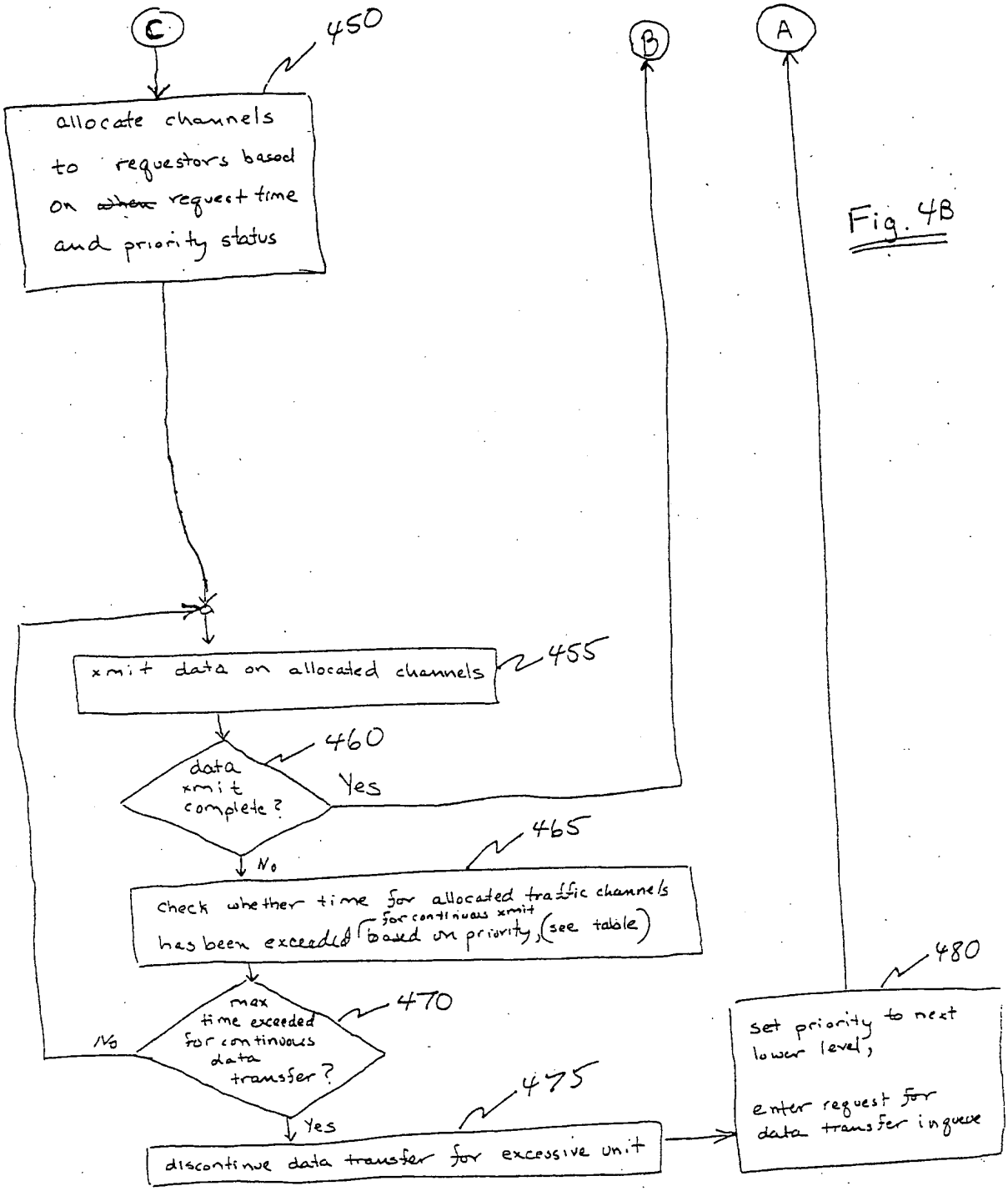
C
450
allocate channels to requestors based on ~~when~~ request time and priority status
B
A
xmit data on allocated channels
455
460
data xmit complete?
Yes
No
465
check whether time for allocated traffic channels has been exceeded (for continuous xmit based on priority, (see table)
max time exceeded for continuous data transfer?
470
No
Yes
475
discontinue data transfer for excessive unit
480
set priority to next lower level,
enter request for data transfer in queue

Fig. 4B

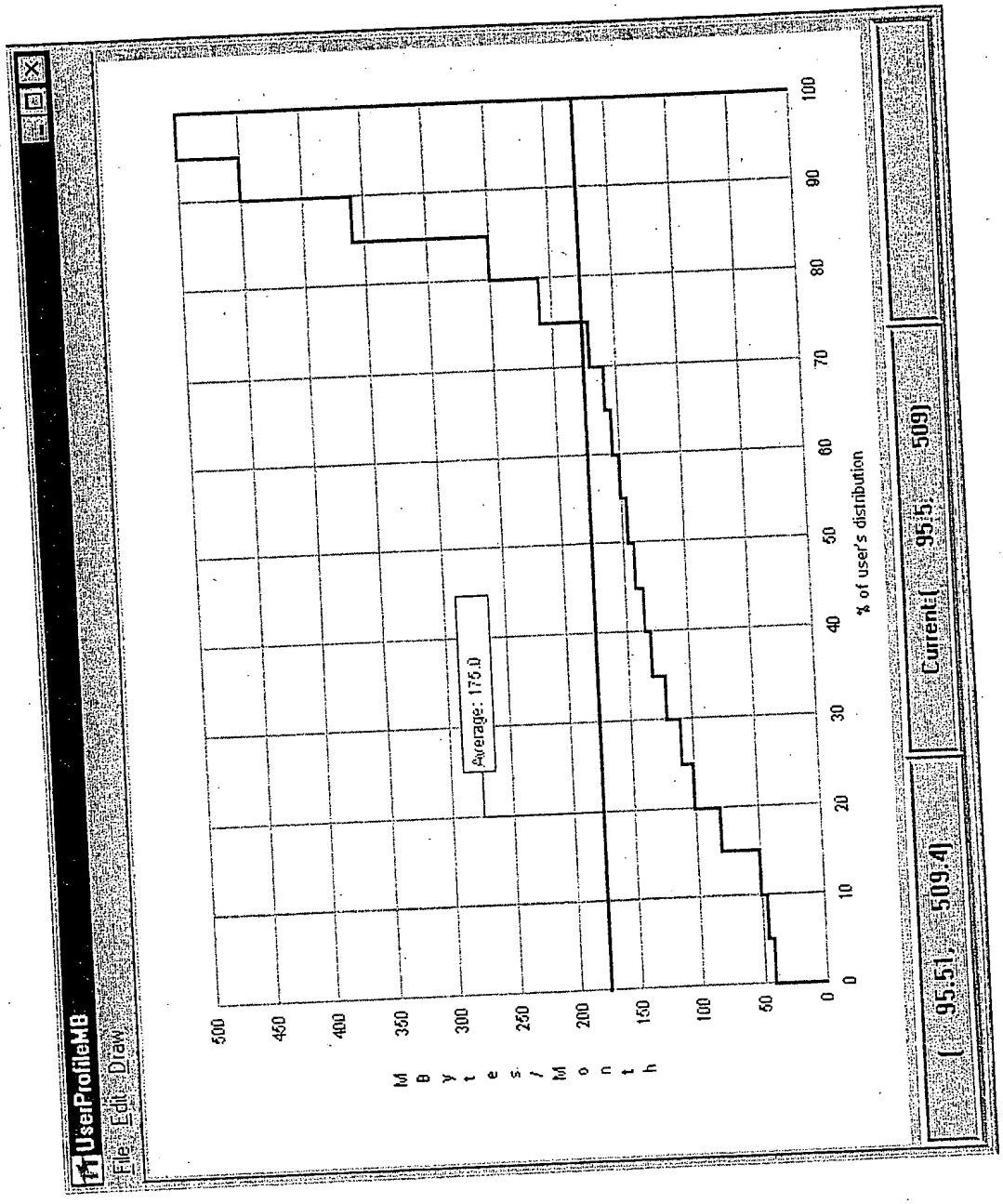
UserProfileMB
File Edit Draw
Average: 175.0
Current: 95.5% 509)
(95.5% 509.4)
Mbytes/Month
% of user's distribution
0
10
20
30
40
50
60
70
80
90
100
50
100
150
200
250
300
350
400
450
500

FIG. 5

Application	Unit of Work	Estimated units per month (during peak load time, given an acceptable speed)	Unit size in Kilobytes	Monthly volumes (MegaBytes during peak load time)	Acceptable speed (kbps - Forward)	Acceptable Speed (kps - Reverse)	Theoretical Response time for unit (seconds)
Short Messages	Message	100	0.1	0.01	14	14	0.06
WAP and short e-mail	Message	200	0.2	0.04	14	14	0.11
e-mail	Letter	200	1	0.20	28	28	0.29
e-mail with attachments (Send&Receive)	Letter	50	200	10.0	128	128	12.50
Web Browsing (articles, text information, etc.)	Page	300	20	6.0	128	28	1.25
Web Browsing (e-bay, news, searching products, etc.)	Page	800	50	40.0	256	28	1.56
Web Downloads (programs, Applications)	Program	4	5000	20.0	384	56	104.17
Distant Learning	Lesson	4	3000	12.0	256	128	N/A
MP3 downloads and sharing	Song	8	4000	32.0	384	384	83.33
Internet radio	Minute of listening	200	480	96.0	64	28	N/A
Videoconferencing	Minute of session	60	2880	172.8	384	384	N/A

FIG. 6

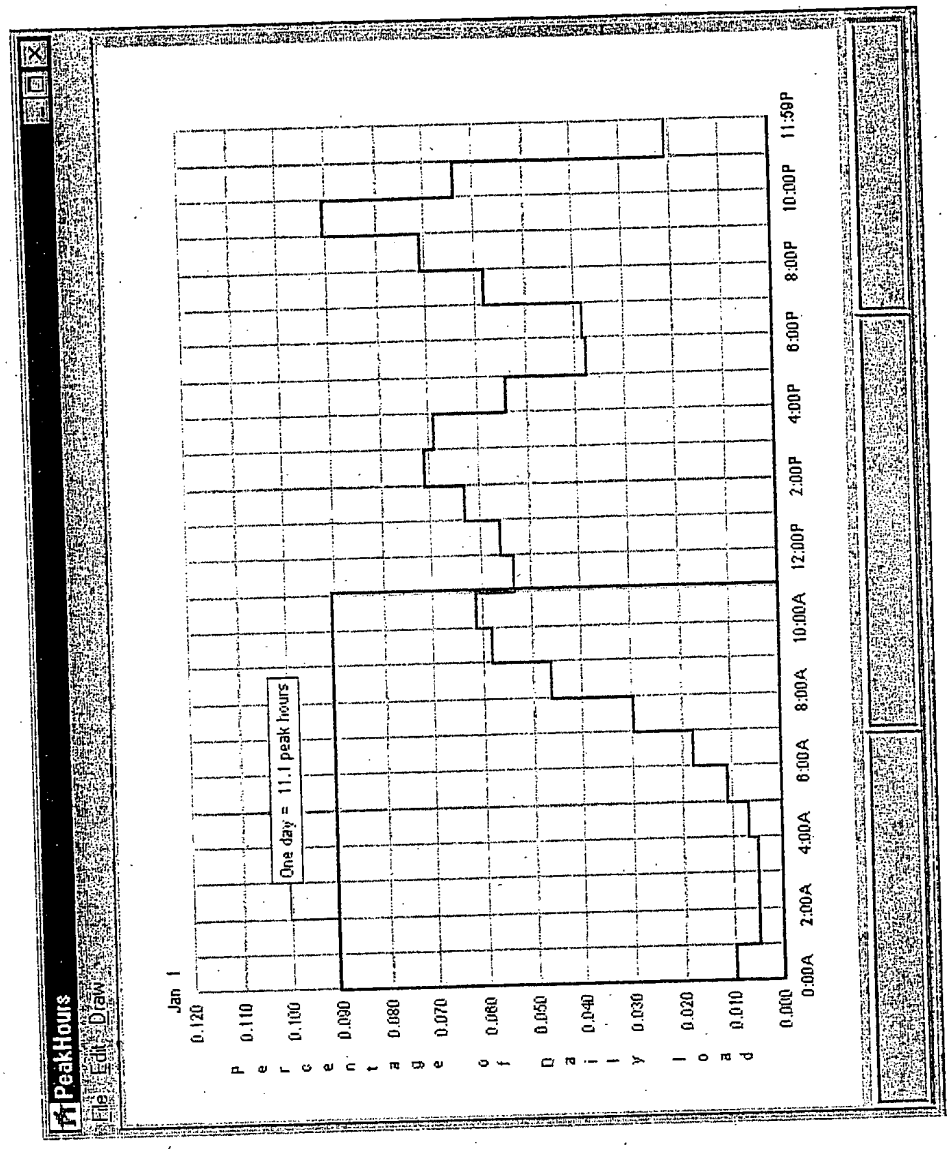
PeakHours
File Edit Draw
Jan 1
One day = 11.1 peak hours
Percentage of Daily load
0.120
0.110
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
0:00A
2:00A
4:00A
6:00A
8:00A
10:00A
12:00P
2:00P
4:00P
6:00P
8:00P
10:00P
11:59P

FIG. 7

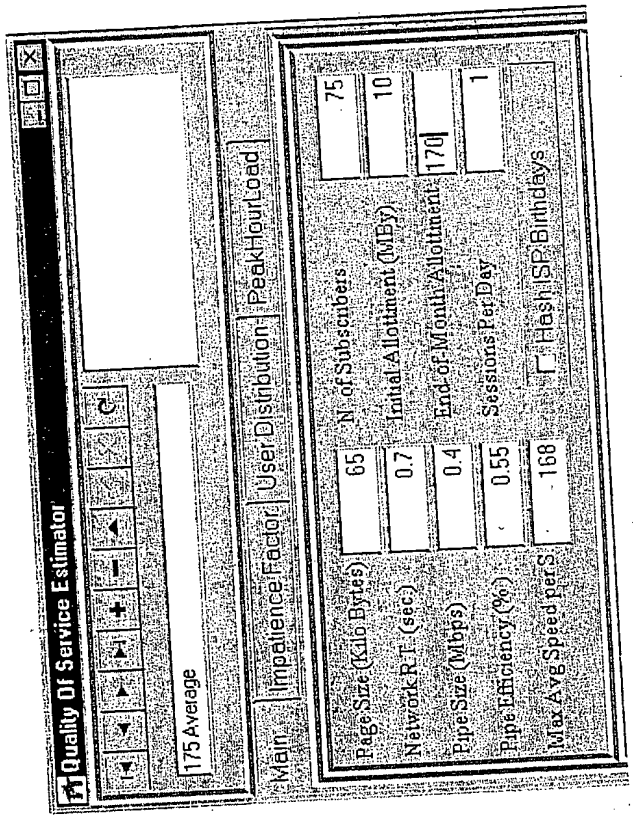
Quality Of Service Estimator
175 Average
Main
Impatience Factor
User Distribution
Peak Hour Load
Page Size (Kilo Bytes)
65
Network R.T. (sec.)
0.7
Pipe Size (Mbps)
0.4
Pipe Efficiency (%)
0.55
Max Avg Speed per S.
168
N. of Subscribers
75
Initial Allotment (MBy)
10
End of Month Allotment
170
Sessions Per Day
1
Hash ISP Birthdays

FIG. 8

Example for User # 52

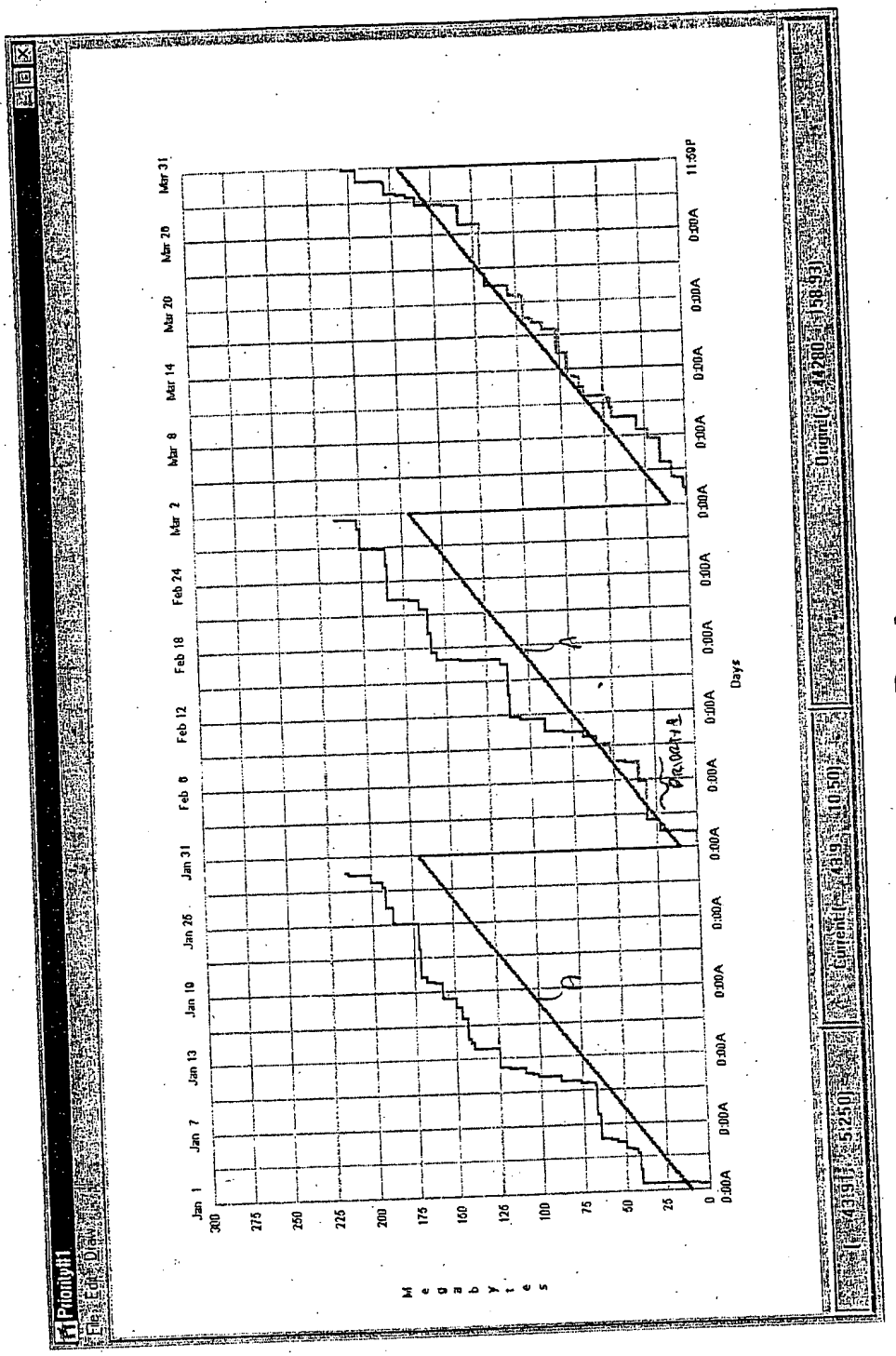

Fig. 9

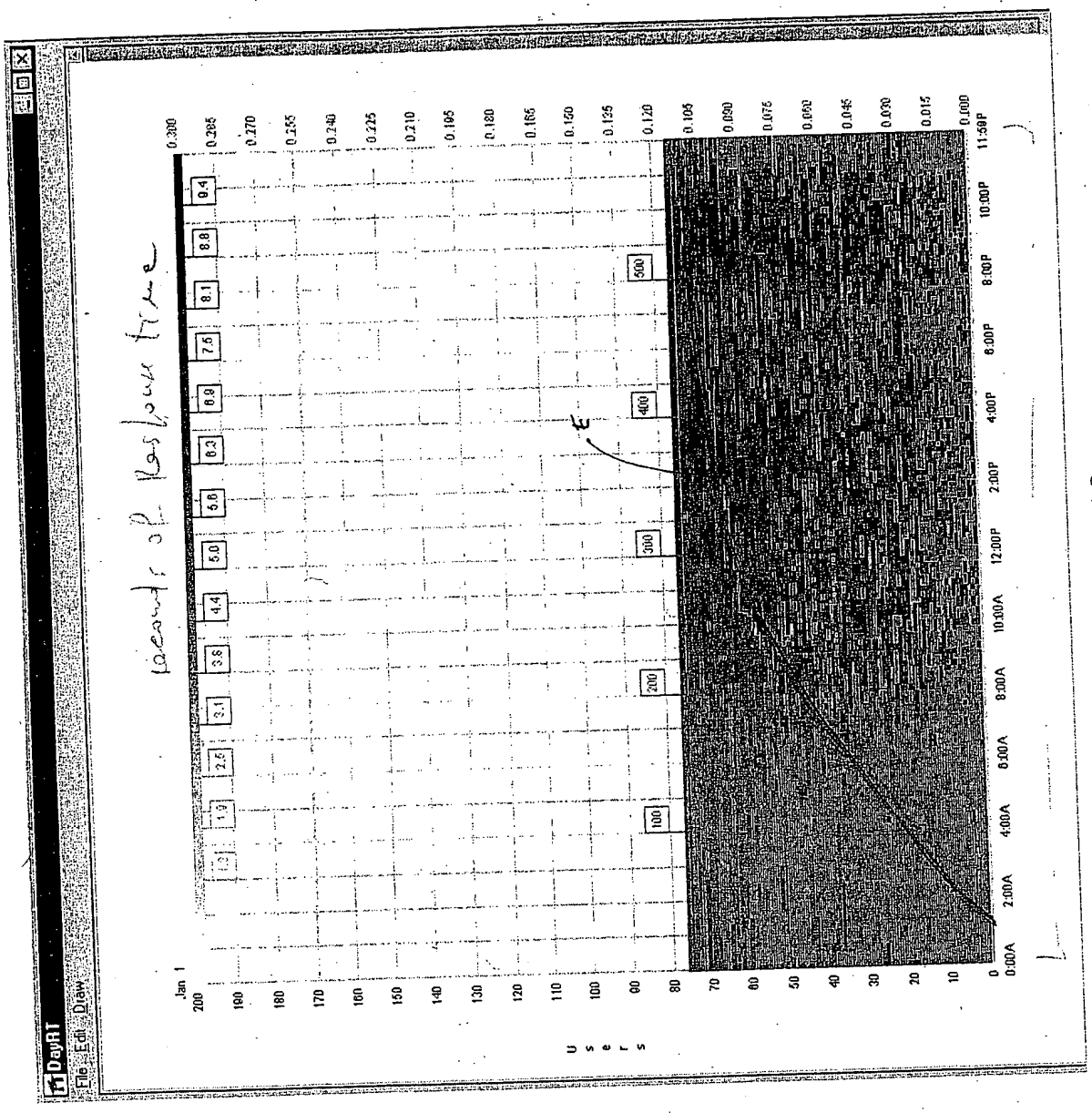
DayRT
File Edit Draw
Users
Jan 1
Loading up Busy Hour
0:00A
2:00A
4:00A
6:00A
8:00A
10:00A
12:00P
2:00P
4:00P
6:00P
8:00P
10:00P
11:59P

Fig. 10

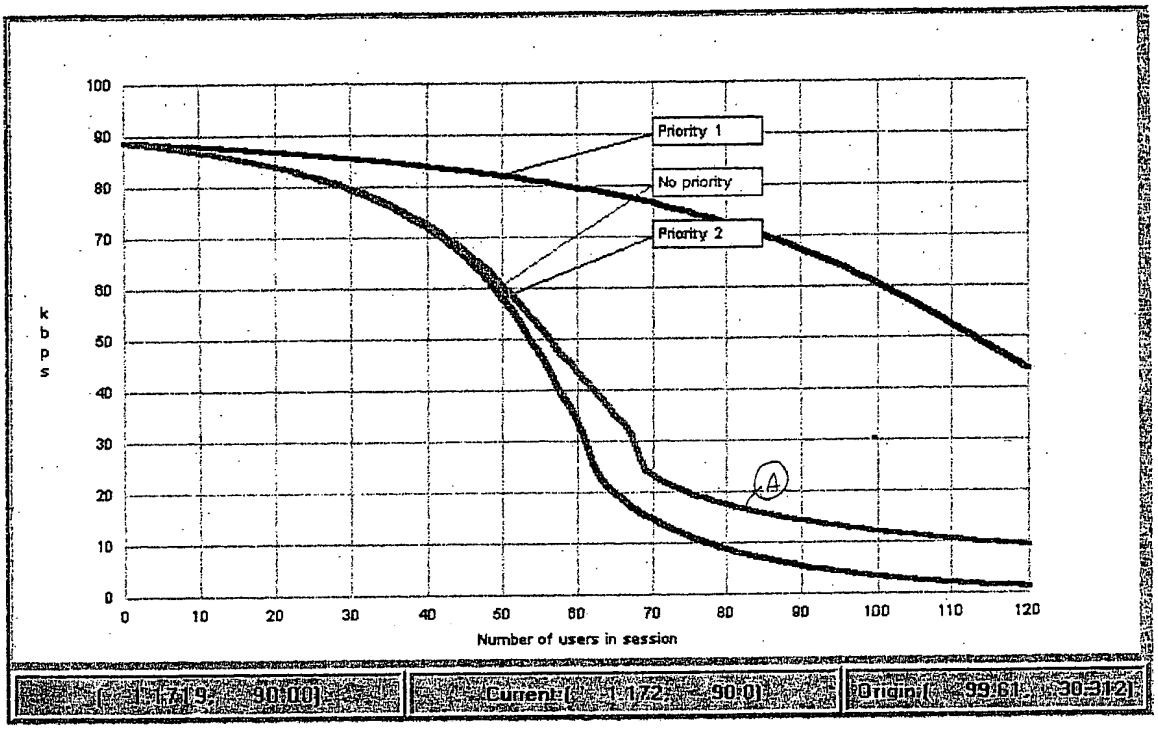
100
90
80
70
60
50
40
30
20
10
0
kbps
0
10
20
30
40
50
60
70
80
90
100
110
120
Number of users in session
Priority 1
No priority
Priority 2
A

FIG. 11